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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,537	03/01/2004	James G. Renfro JR.	HE0221	2742
21495	7590	09/20/2005		
CORNING CABLE SYSTEMS LLC P O BOX 489 HICKORY, NC 28603			EXAMINER HUGHES, JAMES P	
			ART UNIT	PAPER NUMBER
			2883	
DATE MAILED: 09/20/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/790,537

Applicant(s)

RENFRO ET AL.



Examiner

James P. Hughes

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4204 62705 3104.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Information Disclosure Statement*

1. The information disclosure statement filed June 37, 2005 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered. Copies of the two PCT applications were not provided.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 8 is ejected under 35 U.S.C. 102(b) as being anticipated by Mallinson (5,146,527). Mallinson (5,146,527) teaches a method and apparatus for fusion splicing two optical fibers which are held by clamps (22 and 22') comprising a ferrule (1) with a first optical fiber (4) and a second optical fiber (4') passing through an internal passageway. Said passageway is held on a base portion (20) has an opening (6) between its first and second ends with at least one electrode (9) disposed adjacent for fusion splicing the optical fibers. Further Mallinson teaches that the

ferrule (1) is supported by a base (20) and that a top, or lid, (e.g. 26) may close down on to the base, thereby initiating splicing of the two fibers. (Col. 1, ll. 35 – Col. 4, ll. 10 and fig. 10)

*Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-7 and 9-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mallinson (5,146,527) in view of Murata et al. (6,779,931). Mallinson (5,146,527) teaches a method and apparatus for fusion splicing two optical fibers as discussed above.

Murata et al. (6,779,931) teaches a method and apparatus for optical fiber fusion comprising: two optical fibers (21a and 21b) which are inserted into a ferrule (e.g. 11) via two opposite ends. Each end has a conical shaped lead-in portion (e.g. 12) adjacent to each end,

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which may provide strain relief to the optical fibers (21a, 1b). The fibers are fused by a glue injected into the ferrule (11) via an opening (e.g. 13) between the first and second ends and in communication with the passageway which the optical fibers are contained. After the fibers are fused, a heat shrinkable projection element (e.g. 41) is heated to seal and reinforce the fusion-spliced optical fibers. (See e.g. Col. 4, ll. 40 – Col. 6, ll. 25 and Figs. 2-12)

Mallinson does not explicitly teach that a heat shrinkable protection element is employed. It would have been obvious to one of ordinary skill in the art at the time of the invention to employ a heat-shrinkable protection as taught by Murata in the invention of Mallinson. One would have been motivated to do so because it would provide an efficient device by allowing added support to the fused fiber as taught by Murata (See e.g., Col. 6, ll. 15-25)

Mallinson in view of Murata does not explicitly teach if the fiber fusing or the heating of the heat shrink tube occur simultaneously or consecutively. It would have been obvious to one of ordinary skill in the art at the time of the invention to conduct the steps either simultaneously or consecutively because this would allow the processing to occur faster (for simultaneous activation); or when consecutively activated, it could allow the fused fibers to harden prior to the softening of the heat-shrink element.

Mallinson in view of Murata does not explicitly teach where the heat source is located. It would have been obvious to one of ordinary skill in the art at the time of the invention to place the heat source below the fiber splice holder, or any other position in the device, to allow optimum heating of the protection element.

Mallinson in view of Murata does not explicitly teach that the fusion splicer is housed in a housing (with a base and a top). It would have been obvious to one of ordinary skill in the art at the time of the invention to house the invention of Mallinson in view of Murata in such a house because this would allow protection of the fusing process from external elements.

Mallinson in view of Murata does not explicitly teach that two fibers held by clamps are moved either by springs or piezoelectric actuation. It would have been obvious to one of ordinary skill in the art at the time of the invention to use such methods of fiber movement because they are efficient at actuating movement.

Mallinson in view of Murata does not explicitly teach that the fusion splicer is powered by a battery. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a battery as the power source in the invention of Mallinson in view of Murata because batteries are notoriously well known as power sources as taught by "Furukawa Electric Develops Ultra-miniature Optical Fiber Fusion Splicer for FTTH".

### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yamazaki et al. (6,599,029) teaches a ferrule that reads, at least, on claim 8. Brehm et al. (5,274,724) teaches a method of splicing two optical fibers (which reads at least on claim 8) employing a ferrule with an opening in its center. (Figs. 4-6) Saito et al. (2002/0197027) teaches an optical fiber fusion splicing method and apparatus for optical fibers. Szanto (5,249,246) teaches a self contained fiber splicing unit. Hakoun et al. (5,218,184) teaches an arc fusion splicer for optical fibers.


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to James P. Hughes whose telephone number is 571-272-2474. The examiner can normally be reached on Monday - Friday 9am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on 571-272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James P. Hughes  
Patent Examiner  
Art Unit 2883



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